This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An ultrasonic elastography system comprising:

an ultrasonic transducer system adaptable to provide a set of echo signals from at least two different angles ~~and from~~ over a plurality of voxels in a region of interest, the set of echo signals including first echo signals taken with tissue of the region of interest substantially at rest in a first compressive state and second echo signals taken with tissue of the region of interest substantially at rest in a second compressive state; each echo signal associated with a single different angle;

a memory device wherein the echo signals are stored for subsequent processing; and

a processor executing a stored program to combine ~~combining~~ at least portions of echo signals from the different angles through a voxel, after they have been stored in the memory device, to produce at least one compounded strain measurement for ~~a~~ the voxel in the region of interest along a predetermined single given angle, the compounded strain measurement being produced by determining relative displacement in time of the portions of the echo signals to deduce displacement between tissue between the first compressive state and the second compressive state

2-4. (cancelled)

5. (currently amended) The ultrasound elastography system of claim 1 wherein the processor receives ~~an angle~~ the different angles of the ultrasonic echo signals underlying the compounded strain measurement to convert ~~the~~ strain ~~measurement~~ measurements derived from the ultrasonic echo signals underlying the compounded strain measurement to ~~an~~ equivalent strain ~~measurement~~ measurements along a predetermined

strain axis of the single given angle; and combines the converted strain measurements to produce the compounded strain measurement.

6. (original) The ultrasound elastography system of claim 5 wherein the predetermined strain axis is an axis of compression of the region of interest.

7. (original) The ultrasound elastography system of claim 5 wherein the predetermined strain axis is perpendicular to an axis of compression of the region of interest.

8. (original) The ultrasound elastography system of claim 5 wherein the conversion of strain measurements to equivalent strain measurement multiplies the strain measurements by a weighting function based on a difference between an angle of the strain measurement and the predetermined strain axis.

9. (original) The ultrasound elastography system of claim 8 wherein the predetermined strain axis is an axis of compression of the region of interest and wherein the weighting function is $w(\theta) = 1/(\cos^2\theta - v\sin^2\theta)$;

where v is an estimate of Poisson's ratio of the tissue of the region of interest; and

θ is the angle between the angle of the strain measurement and the predetermined strain axis.

10. (previously presented) The ultrasound elastography system of claim 8 wherein the predetermined strain axis is an axis perpendicular to an axis of compression of the region of interest and wherein the weighting function is $w(\theta) = 1/(\sin^2\theta - 1/\nu\cos^2\theta)$;

where ν is an estimate of Poisson's ratio of the tissue of the region of interest; and

θ is the angle between the angle of the strain measurement and the predetermined strain axis.

11. (previously presented) The ultrasound elastography system of claim 1 wherein the angle of compression changes with changes in the angle of the echo signal and wherein the predetermined strain axis is an axis angled with respect to the compression of the region of interest.

12. (original) The ultrasound elastography system of claim 11 wherein the weighting function is $w(\theta) = 1/(\cos^2\theta - \nu\sin^2\theta)$;

where ν is an estimate of Poisson's ratio of the tissue of the region of interest; and

θ is the angle between the angle of the strain measurement and the predetermined strain axis.

13. (original) The ultrasound elastography system of claim 1 wherein one compressive state is no compression.

14. (original) The ultrasound elastography system of claim 1 wherein the processor combines the set of echo signals at the different angles to produce at least two compounded strain measurements of the voxel along at least two strain axes.

15. (original) The ultrasound elastography system of claim 14 wherein the two strain axes are perpendicular.

16. (original) The ultrasound elastography system of claim 14 wherein one of the two strain axes are perpendicular to the compression.

17. (original) The ultrasound elastography system of claim 1 wherein the processor provides compounded strain measurements for multiple voxels to provide a strain image output.

18. (previously presented) The ultrasound elastography system of claim 1 wherein the processor provides an output of the group consisting of: Poisson's ratio of the tissue of the region of interest, and shear strain of the tissue of the region of interest.

19. (original) The ultrasound elastography system of claim 1 wherein the processor receives a series of position signals from the ultrasonic transducer system and including a combiner using the position signals to match corresponding portions of the echo signals by voxel to produce the compounded strain measurement.

20. (previously presented) The ultrasound elastography system of claim 1 wherein the processor includes a correlator correlating values of the echo signals over each voxel to determine a maximum correlation and using the maximum correlation to match corresponding portions of the echo signals to produce the compounded strain measurement.

21. (currently amended) A method of ultrasonic elastography comprising the steps of:

(a) collecting with an ultrasonic transducer, at least two first echo signals from at least two different angles ~~and from~~ over a plurality of voxels in the region of interest in a first compressive state with tissue of the region of interest substantially at rest, each of the first echo signals associated with a single different angle;

(b) after step (a), collecting with the ultrasonic transducer at least two second echo signals from the different angles ~~and from~~ over the plurality of voxels in the region of

interest in a second compressive state with tissue of the region of interest substantially at rest, each of the second echo signals associated with a single different angle;

(c) storing the collected signals of steps (a) and (b) in a memory device after collection of the signals at steps (a) and (b); and

(d) after step (c), reading the collected signals from the memory device and combining at least portions of the first and the second echo signals from the different angles related to each voxel, to produce at least one compounded strain measurement for each voxel in the region of interest ~~at a~~ along a predetermined single given angle, the compounded strain measurement being produced ~~by~~ from relative displacement in time of the portion of the echo signals related to each voxel to deduce displacement between tissue between the first compressive state and second compressive state.

22-24. (cancelled)

25. (currently amended) The method of claim 22 wherein step (d)~~the processor~~ receives ~~an angle~~ the different angles of the ultrasonic echo signals underlying the compounded strain measurement to convert ~~the~~ strain ~~measurement~~ measurements derived from the ultrasonic echo signals underlying the compounded strain measurement to ~~an~~ equivalent strain ~~measurement~~ measurements along a predetermined strain axis of the single given angle; and

combines the ~~converted~~ equivalent strain measurements to produce the compounded strain measurement.

26. (original) The method of claim 25 wherein the predetermined strain axis is an axis of compression of the region of interest.

27. (original) The method of claim 25 wherein the predetermined strain axis is perpendicular to an axis of compression of the region of interest.

28. (original) The method of claim 25 wherein the conversion of strain measurements to equivalent strain measurement multiplies the strain measurements by a weighting function based on a difference between an angle of the strain measurement and the predetermined strain axis.

29. (original) The method of claim 28 wherein the predetermined strain axis is an axis of compression of the region of interest and wherein the weighting function is $w(\theta) = 1/(\cos^2\theta - \nu\sin^2\theta)$;

where ν is an estimate of Poisson's ratio of the tissue of the region of interest; and

θ is the angle between the angle of the strain measurement and the predetermined strain axis.

30 (previously presented) The method of claim 28 wherein the predetermined strain axis is an axis perpendicular to an axis of compression of the region of interest and wherein the weighting function is $w(\theta) = 1/(\sin^2\theta - 1/\nu\cos^2\theta)$;

where ν is an estimate of Poisson's ratio of the tissue of the region of interest; and

θ is the angle between the angle of the strain measurement and the predetermined strain axis.

31. (original) The method of claim 22 wherein the angle of compression changes with changes in the angle of the echo signal and wherein the predetermined strain axis is an axis angled with respect to the compression of the region of interest.

32. (previously presented) The method of claim 31 wherein the weighting function is $w(\theta) = 1/(\cos^2\theta - v\sin^2\theta)$;

where v[[P]] is an estimate of Poisson's ratio of the tissue of the region of interest; and

θ is the angle between the angle of the strain measurement and the predetermined strain axis.

33. (original) The method of claim 21 wherein one compressive state is no compression.

34. (original) The method of claim 21 wherein the processor combines the set of echo signals at the different angles to produce at least two compounded strain measurements of the voxel along at least two strain axes.

35. (previously presented) The method of claim 34 wherein the two strain axes are perpendicular.

36. (previously presented) The method of claim 34 wherein one of the two strain axes are perpendicular to the compression.

37. (previously presented) The method of claim 21 wherein step (d) produces compounded strain measurements for multiple voxels to provide a strain image output.

38. (previously presented) The method of claim 21 wherein step (d) provides an output of the group consisting of: Poisson's ratio of the tissue of the region of interest, and shear strain of the tissue of the region of interest.

39. (original) The method of claim 21 including the step of receiving a series of position signals from the ultrasonic transducer and matching corresponding portions of the echo signals by voxel to produce the compounded strain measurement.

40. (original) The method of claim 21 including the step of correlating values of the echo signals over each voxel to determine a maximum correlation, and using the maximum correlation to match corresponding portions of the echo signals, produce the compounded strain measurement.

41. (original) The method of claim 21 wherein the echo signals are collected at angles differing by no more than 5 degrees.

42. (original) The method of claim 21 wherein the echo signals are collected at angles differing by less than 1 degree.

43. (original) The method of claim 21 wherein the echo signals are collected at angles ranging over 180 degrees.

44. (original) The method of claim 21 wherein the echo signals are collected at angles ranging less than 90 degrees.

45. (original) The method of claim 21 wherein the echo signals are collected of voxels aligned within a single image plane.

46. (original) The method of claim 21 wherein the echo signals are collected of voxels distributed over a volume extending for multiple voxels in two dimensions perpendicular to a direction of ultrasonic propagation.

47. (new) The ultrasound elastography system of claim 1 wherein the ultrasonic transducer system is a phased array transducer outputting the echo signals.

58. (new) The method of claim 21 wherein step (a) employs a phased array transducer combining ultrasound signals to create the echo signals.